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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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MORTALITY EXPERIENCE OF THE FIRST SIX MONTHS OF 1928

Health conditions in the industrial populations of the United States and Canada during the first half of 1928 have been somewhat better than the average. They have not been as satisfactory as those prevailing during the corresponding periods of 1927 and 1921.

Mortality Increased in the Second Quarter

The health record of the first quarter was excellent, sharing with the corresponding period of 1927 the distinction of registering the lowest deathrate ever recorded among Metropolitan Industrial policyholders during the first quarter of any year. But even before the expiration of that quarter there were indications that a less favorable period was to ensue. There followed during April and May a rather abrupt change in the health picture. The April deathrate exceeded that for April, 1927, by 5.3 per cent. and this year's excess for May was 20 per cent. In May, when the usual seasonal decline in the mortality was expected, there was registered instead an increase of 4 per cent. over the April figure.

Much Higher Deathrate from Influenza and Pneumonia

Deaths from influenza and pneumonia were unusually frequent during the second quarter with the result that at the end of the half-year the deathrate for these diseases, combined, was 19.8 per cent. in excess of last year's figure.

More Deaths from Principal "Degenerative" Diseases

As invariably happens when there is a pronounced rise in the mortality from influenza and pneumonia, that from the principal degenerative conditions also increased. The rate for organic heart disease among white policyholders during the first half of 1928 was

139.5 per 100,000, as compared with 130.0 during the like period of 1927; and there was a corresponding rise for the colored. Smaller increases were in evidence for cerebral hemorrhage and chronic nephritis.

Cancer

The cancer deathrate among the white policyholders was very slightly higher than for the first half of either 1927 or 1926. Among the colored there was a sharp rise, with this year's figure for the half-year (77.3 per 100,000) registering an increase of 7.7 per cent. and 15.4 per cent. respectively over those for the corresponding period of 1927 and 1926.

Upward Trend of Diabetes Mortality Continues

The diabetes deathrate in the industrial populations of the United States and Canada has been showing an upward tendency since 1924. This holds true, more particularly, for insured colored persons. The mortality experience of recent years refutes definitely the theory (which once prevailed) that the negro is much less susceptible to diabetes than the Caucasian. Among insured urban negroes, at least, the diabetes deathrate is now running much higher than for the whites. This may be due, in part, to the failure of insured negroes to enjoy the benefits of the insulin treatment to as great an extent as do the whites. But we cannot escape the fact that the deathrate is increasing for each race, and that for the colored, the rate for the first half of 1928 was nearly one-third higher than it was only two years ago.

Tuberculosis Deathrate Lower than Ever Before

In the series of years beginning with 1911 the reduction in the tuberculosis deathrate in the industrial populations of the United States and Canada has been practically continuous. Only two years, 1918 and 1926, failed to show improvement over those immediately preceding; and even in these two instances the deviation from the general downward trend was negligible. It is already assured that 1928 will mark another important milestone in the conquest of tuberculosis; for it is invariably in the first half of every year that most of the deaths from tuberculosis are recorded; and in this period of 1928 the tuberculosis deathrate in the industrial population was only 96.9 per 100,000 as compared with the former minimum of 100.3, registered for the same months of last year. Among white Industrial policyholders, the astonishingly low deathrate of 75.5 per

100,000 was recorded for the six months' period, a reduction of 6.1 per cent. from the previous minimal figure of 80.4, recorded only last year, and of 14.3 per cent. in only two years. Unfortunately, improvement in these more recent years has not extended to the colored industrial population, which actually showed a higher tuberculosis deathrate than during the like period of both 1927 and 1926. This unfavorable experience for colored persons is a comparatively recent development; for, up to five years ago, a declining tuberculosis deathrate was being observed in both races. It is in the ages of childhood, particularly, that the most pronounced contrasts between the tuberculosis deathrates for white and colored persons are found. One of the greatest problems now confronting the anti-tuberculosis movement in America is that of finding a way to further reduce the mortality from this disease among urban negroes.

Communicable Diseases

The typhoid fever deathrate has been lower in 1928 than ever before during the first half of any year. The great bulk of the mortality from this disease, however, occurs in the late summer and early fall, and developments in those months will determine whether 1928 is to record a new minimal mortality figure for typhoid.

Among the four principal communicable diseases of childhood, measles shows a somewhat increased mortality rate over last year among the whites and a decided rise among negroes. The situation with respect to scarlet fever and diphtheria shows little change, while whooping cough mortality has improved. The marked increase in deaths from meningococcus meningitis, to which attention was directed in the STATISTICAL BULLETIN, at the end of the first quarter, became even more pronounced during the second quarter.

Great Improvement for Puerperal Conditions

The half-year's record for conditions incidental to pregnancy and childbirth is the best we have ever experienced. The very pronounced drop in deaths from puerperal septicemia among colored women is one of the most gratifying items in the year's health record, to date.

Alcoholism, Cirrhosis of the Liver and Wood Alcohol Poisoning

Between January 1st and June 30th, 284 deaths were charged to alcoholism as compared with 300 during the corresponding period of 1927. The deathrate declined from 3.4 per 100,000 to 3.1. The improvement was confined to the white policyholders, with the

colored showing the highest deathrate from this cause during recent years.

Of the 284 deaths, 282 occurred in the United States and two in Canada. Since January 1, 1922, a period of six and one-half years, 3,182 deaths from alcoholism have been reported among Metropolitan Industrial policyholders, of which 3,150 occurred among approximately seventeen million persons living in the United States and only 32 among more than one million insured Canadians.

Deaths from cirrhosis of the liver, which is closely associated with alcoholism, numbered 578, as compared with 587 during the same period of last year. The deathrate was 6.3 per 100,000 as compared with 6.6 and 6.9 during the same months of 1927 and 1926 respectively. On the other hand, there were 18 deaths from acute poisoning by wood or denatured alcohol, as compared with 12 and 10 deaths during the first six months of 1927 and 1926 respectively.

Suicides, Homicides and Accidents

In contrast with the first quarter of 1928, the second quarter recorded a relatively unfavorable suicide rate for insured white persons with the result that the total for the half-year shows an increase over 1927 and a larger rise over the first half of 1926. The homicide rate, on the other hand, is lower this year for both white and colored persons, and some slight improvement is also in evidence with respect to deaths from accidents.

Automobile Accidents

The record for automobile fatalities shows little change in the deathrate as compared with the first half of 1927. For white policyholders the deathrate is identical with that for 1927. There has been a considerable increase, however, among the colored. Thus far in 1928 the increase over the preceding year in automobile fatalities has been smaller than we have observed in most recent years. It is just possible that the end of 1928 will mark a check in the long-continued rise in the mortality from this type of fatality. During the first half of 1928, deaths arising out of motor vehicle traffic constituted over one-fourth of those due to all types of fatal accidents, and nearly 2 per cent. of the deaths from all causes combined.

The table on page 5 presents the deathrates among white and colored policyholders respectively, for the first six months of 1928, 1927 and 1926.

Deathrates per 100,000 Exposed. First Six Months of 1926, 1927 and 1928 Compared. By Color for Principal Causes of Death. Industrial Department, Metropolitan Life Insurance Company. Premium Paying Business

CAUSE OF DEATH	DEATHRATES PER 100,000 PERSONS EXPOSED					
	WHITE			COLORED		
	Jan.-June, '28	Jan.-June, '27	Jan.-June, '26	Jan.-June, '28	Jan.-June, '27	Jan.-June, '26
ALL CAUSES OF DEATH	888.3	856.8	966.7	1,619.4	1,540.4	1,654.6
Typhoid fever	1.7	4.2	2.5	2.7	6.5	4.5
Measles	8.6	7.1	18.0	8.1	3.6	13.0
Scarlet fever	4.0	4.4	5.0	1.7	1.4	1.5
Whooping cough	5.8	6.9	11.1	8.8	9.4	13.6
Diphtheria	12.1	11.8	10.1	6.2	6.7	6.2
Influenza	28.2	21.6	45.9	62.1	52.4	91.5
Meningococcus meningitis	2.1	1.3	.9	2.9	1.8	.6
Tuberculosis—all forms	75.5	80.4	88.1	242.5	237.6	240.8
Tuberculosis of respiratory system	66.1	70.3	77.5	212.3	208.3	210.8
Tuberculosis of meninges, etc.	4.4	5.0	5.1	8.2	7.4	7.7
Other forms of tuberculosis	5.0	5.1	5.5	22.0	21.8	22.3
Cancer	75.2	74.5	74.3	77.3	71.8	67.0
Diabetes	18.7	17.3	18.2	21.4	19.4	16.3
Alcoholism	2.8	3.1	3.4	5.3	5.0	4.8
Cerebral hemorrhage; apoplexy	53.8	51.5	55.3	104.4	97.7	101.1
Organic diseases of the heart	139.5	130.0	142.3	239.7	217.4	219.5
Total respiratory diseases	119.8	102.7	140.6	243.8	209.8	276.3
Bronchitis	4.8	4.6	5.9	7.2	8.1	10.7
Bronchopneumonia	44.7	39.2	58.2	81.9	68.0	97.0
Pneumonia—lobar and undefined	61.5	50.9	68.2	141.1	121.9	155.6
Other diseases of resp'y system	8.8	8.0	8.3	13.5	11.7	13.0
Diarrhea and enteritis	15.7	16.5	18.0	17.5	19.6	20.1
Under 2 years	12.8	13.3	15.2	12.1	13.3	14.9
2 years and over	2.9	3.2	2.8	5.4	6.3	5.2
Acute nephritis	4.2	4.0	4.6	13.0	15.3	16.9
Chronic nephritis	67.2	66.0	72.2	136.2	129.6	137.0
Total puerperal state	13.5	14.5	15.8	21.1	25.5	24.5
Puerperal septicemia	4.7	5.9	6.0	9.2	13.4	11.4
Puerperal albuminuria and convulsions	3.0	2.8	3.5	3.7	4.6	5.9
Other diseases of puerperal state	5.8	5.9	6.3	8.2	7.5	7.2
Total external causes	66.3	68.2	66.5	105.0	115.5	110.4
Suicides	8.7	8.5	7.8	6.2	7.0	5.7
Homicides	2.8	3.1	3.1	30.6	36.6	33.1
Accidental and unspecified violence	54.9	56.6	55.6	68.2	71.9	71.6
Accidental drowning	4.9	4.5	4.1	4.1	6.5	3.4
Automobile accidents	15.1	15.1	14.5	16.6	14.7	13.1
All other and ill-defined causes of death	173.7	170.7	173.8	299.8	294.7	288.9

CANCER HAZARDS AMONG OVERWEIGHTS

A higher cancer deathrate seems to be one of the penalties for overweight. Persons from 5 to 15 per cent. in excess of normal tabular standards of weight show a cancer mortality about 9 per cent. in excess of the rate among normal weights. For persons who are 15 to 25 per cent. overweight, the cancer deathrate is 24 per cent. in excess of the rate among persons of normal or standard weight. The highest cancer deathrate prevails among those excessively overweight. Overweight, 25 per cent. or more above the standard for height and age, carries with it an excess of 29 per cent. in cancer deaths.

These facts were disclosed in an investigation of the cancer mortality records made available through the courtesy of the UNION CENTRAL LIFE INSURANCE COMPANY.† They cover risks admitted to that Company between 1887 and 1908, with the observations carried to the end of 1921. An abstract of the chief results of this inquiry is shown in the following table.

Deaths per 100,000 from Cancer—All Forms—At Ages 45 and Over by Build Classes among White Males in Experience of Union Central Life Insurance Company, 1887 to 1921

BUILD CLASS AT ISSUE OF POLICY	DEATHRATES PER 100,000*	PERCENTAGE OF RATE IN "NORMAL" WEIGHT CLASS
15 to 50% underweight	95	86
5 to 15% underweight	114	103
Normal Weight	111	100
5 to 15% overweight	121	109
15 to 25% overweight	138	124
25% or more overweight	143	129

*In a population with age composition of the normal weights. First four policy years excluded to reduce effect of medical selection of applicants for insurance.

Dr. DUDLEY JACKSON, a general surgeon, of San Antonio, Texas, and a number of other observers, have been impressed in recent years with the inability of cancer patients to handle a normal carbohydrate intake. There has also been a fairly definite impression among surgeons handling cancer cases that recurrences after surgical, x-ray or radium treatment seemed to be less frequent among patients who were kept on a low sugar intake than among those who kept up their usual general diet. A series of experiments by Dr. JACKSON

†Original records from Dr. WM. MUHLBERG, Medical Director, and Messrs. E. E. HARDCASTLE, Actuary, and A. J. KOEPPE, Assistant Actuary, tabulation by Statistical Bureau, Metropolitan Life Insurance Company.

in transplanting malignant growths in dogs shows that a greater number of "takes" occur in dogs who are fed a generous sugar diet than with animals who are kept practically sugar free. RONDONI, in 1926, showed that the growth of carcinoma is augmented by the administration of glucose, and HANDEL and TADENIMA, in 1924, demonstrated that the growth of transplantable rat carcinoma was more rapid on a diet rich in carbohydrate than on one which was rich in protein or fat.

The established fact of an increase of about one-third in cancer mortality among overweights suggests that exact and repeated observations of the blood picture and of carbohydrate tolerance in pre-cancer and cancer cases should be undertaken, and that such inquiry may yield results of wide significance and of practical application. Inquiries of the following character, suggested by Dr. JACKSON and other students of the cancer problem, seem to be indicated: determination of the influence of a constant hyperglycemia on the rate of growth of cancer; the effect of artificially induced hypoglycemia on cancer growth; blood sugar and glucose tolerance tests on animals in strains demonstrably susceptible to carcinoma, as compared with similar facts for cancer-resistant strains; the incidence and form of sugars deposited in tissues more or less susceptible to cancer; the effect of radiation on the amount of sugar deposited in the tissues; the effect of radiation on glycolysis in experimental animals; and blood picture and glucose tolerance tests, coordinated with records of treatment and of after-results for patients treated in cancer hospitals.

A PLAN FOR BETTER ACCIDENT STATISTICS

What promises to be one of the most interesting and productive features of the forthcoming annual meeting of the AMERICAN PUBLIC HEALTH ASSOCIATION, at Chicago, in October, is the opening session of the Vital Statistics Section, which will consider plans for obtaining more informative statistics of fatal accidents. At the invitation of the Section, the NATIONAL SAFETY COUNCIL has appointed speakers who will advocate before an assemblage of vital statisticians, representing federal, state, municipal and corporate statistical offices, changes which the Council believes should be made in the present system of classifying accidental deaths. The viewpoints of the Council's speakers will be discussed by leading vital statisticians of the United States and Canada.

This meeting, it is hoped, will signalize the beginning of a real "get-together" movement between the two leading organizations

whose interest lies in the betterment of public health and public safety. The AMERICAN PUBLIC HEALTH ASSOCIATION is concerned with the study of accidents as well as of disease, because it realizes that measures for accident prevention are also health measures, and make for the prolongation of human life. This country suffers needlessly from high fatal accident rates—much more than do other countries which are equally advanced socially and industrially. In 1927 (which was a record health year in this country and Canada), there were close to 100,000 accidental deaths in the United States. That year was featured by remarkable improvement in public health, but showed little or no progress in public safety. A more active and *cooperative* campaign of education is called for to reduce this life wastage.

The first step in the control of this needless toll of human life is to know accurately the chief sources of fatal accidents. We must develop a classification of accidents which will show how many arise out of industry, how many are dependent on conditions of home life, how many occur in the use of transportation facilities, sport, recreation, and in other ways.

The representatives of the NATIONAL SAFETY COUNCIL will advocate some important advances in the present system of classifying deaths from accidents as reported to registrars of vital statistics. The practicability of their suggestions will be discussed by the vital statisticians present. Both groups realize that accident statistics should lend themselves, not only to the discovery of what has happened in the past, but to the determination of what should be done in the future.

A general talk on the accident problem will be made by Mr. CHARLES B. SCOTT, Manager of the Bureau of Safety, Chicago, and past President of the NATIONAL SAFETY COUNCIL. Mr. R. L. FORNEY, the Council's Statistician, will speak on "What We Don't Know About Accidents"; and Dr. A. A. WHITTEMORE, Director of the NORTH DAKOTA STATE BOARD OF HEALTH and Mr. JAMES E. BAUMAN, Assistant Director of the OHIO STATE DEPARTMENT OF HEALTH will tell what they have learned about accidents by the application of newer classification methods in the study of the vital statistics records of their states.

HEALTH RECORD FOR JUNE, 1928

Following an extremely unfavorable mortality record in May, that for June showed marked improvement. While the May, 1928,

deathrate was 20 per cent. higher than that for May, 1927, the June figure, this year, exceeded only slightly that for June a year ago. The drop in the mortality rate from May to June, 1928, was due, for the most part, to large decreases in deaths from influenza, pneumonia, cerebral hemorrhage and organic heart disease. Despite this month-to-month decline for these diseases, this year's June rates for influenza, pneumonia and heart disease, were markedly higher than those prevailing a year ago. The tuberculosis deathrate of June was a little above that of last year, but as noted on page 2 the record for the first six months shows a goodly reduction in the mortality from tuberculous disease.

There were 155 deaths from measles in June, 190 deaths in May and 155 in April, and the deathrate for each of these months was much in excess of last year's figure. Nineteen twenty-eight is evidently to be another "measles year." The deathrate from this disease ordinarily follows a fluctuating course with marked peaks occurring with much regularity at intervals of about seven years, and smaller peaks at intervening intervals of three or four years. The high measles deathrate of 1928, however, comes after an interval of only one intervening year of low mortality from this disease. The whooping cough and diphtheria deathrates were slightly higher than those for June a year ago.

June was the fifth of the six elapsed months of 1928 to show a higher diabetes deathrate than obtained in the corresponding month of 1927.

Notably lower deathrates than in June, 1927, were recorded for typhoid fever, Bright's disease, puerperal conditions, homicides and automobile fatalities. With the last named, the June deathrate was lower than has prevailed for that month since 1925.

The general deathrate for the large cities of the United States, in June, was 12.4 per 1,000 population. This shows a pronounced drop from the figure for the previous month (14.8), but is much higher than the mortality in June, 1927 (11.7). More cases of poliomyelitis and typhoid fever were reported than in May, but there was less sickness from diphtheria, influenza, measles, scarlet fever and smallpox. Comparison with June, 1927, shows more cases of influenza, measles, scarlet fever and smallpox, but less diphtheria, poliomyelitis and typhoid fever.

Diphtheria cases in 31 states dropped from 5,037 in May, to 4,972 in June. Influenza cases in 16 states declined from 13,227, in May, to 4,699 in June. Even with this decline, there were three

times as many reports of influenza as in June, 1927, in the same states. Measles cases declined in 38 states from 71,511, in May, to 51,550 in June, the latter figure being comparable with 33,076 in June, 1927. Reports of scarlet fever cases dropped from 14,876, in 43 states, in May, to 9,826 in June.

Smallpox was considerably less prevalent in June than in May; case reports dropping from 3,731 to 2,419.

As is usual at this time of the year, there was increased prevalence of typhoid fever in June, with reports from 42 states showing a rise to 1,240 cases as compared with 862 in May. In South Carolina, the increase was from 69 to 190 cases; in Mississippi, from 16 to 62; in Louisiana, from 55 to 100, and in Wyoming, from no cases to 33.

The following are the most noteworthy health activities of the month. A drive to immunize children of pre-school age against diphtheria took place in Philadelphia from June 4 to June 22. Seventy public, and eight parochial schools were used as centres for the work. It was announced that EDWARD W. ROBINETTE, an alumnus of the University of Pennsylvania, had given $250,000 for the establishment of a clinic for the study, treatment and prevention of diseases of the heart and circulatory system. A periodic health examination demonstration has been established at the Bellevue-Yorkville Health Centre for the purpose of demonstrating to practitioners, the technique of making a health examination. The physicians of the district were invited to take the course without charge, and up to June 9, 30 had applied. In Mount Vernon, N. Y., an emergency clinic was established by health officials for the treatment of children bitten by dogs. Thirteen cases were reported.

The following table shows the mortality among Industrial policyholders for June, 1928, May, 1928, June, 1927 and the year 1927.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF JUNE, 1928; MAY, 1928, AND OF JUNE, 1927

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	June, 1928	May, 1928	June, 1927	Year 1927†
TOTAL—ALL CAUSES	943.6	1038.1	923.2	885.4
Typhoid fever	2.5	2.0	6.1	4.6
Measles	10.2	12.1	5.7	4.1
Scarlet fever	3.1	3.1	3.5	3.1
Whooping cough	7.4	6.9	6.9	6.4
Diphtheria	10.8	9.1	10.4	10.5
Influenza	23.8	38.6	12.0	17.7
Tuberculosis (All forms)	102.6	105.0	99.8	93.3
Tuberculosis of resp'y system	87.8	92.5	80.9	81.7
Cancer	73.9	76.6	74.0	74.0
Diabetes mellitus	17.8	19.8	16.9	16.7
Cerebral hemorrhage	55.2	62.2	57.5	54.9
Organic diseases of heart	142.7	159.3	138.7	132.2
Pneumonia (All forms)	94.1	132.5	69.7	77.6
Other respiratory diseases	16.2	20.8	16.7	15.4
Diarrhea and enteritis	21.3	15.4	22.0	24.5
Bright's disease (Chronic nephritis)	67.6	75.8	75.5	69.3
Puerperal state	14.4	14.5	16.3	15.4
Suicides	9.4	9.1	8.6	8.3
Homicides	5.8	7.6	7.6	7.2
Other external causes (excluding suicides and homicides)	61.1	56.9	69.0	63.7
Traumatism by automobiles	16.9	15.8	19.5	18.3
All other causes	203.8	210.8	206.3	186.7

*All figures include infants insured under one year of age.
†Based on provisional estimates of lives exposed to risk in 1927.

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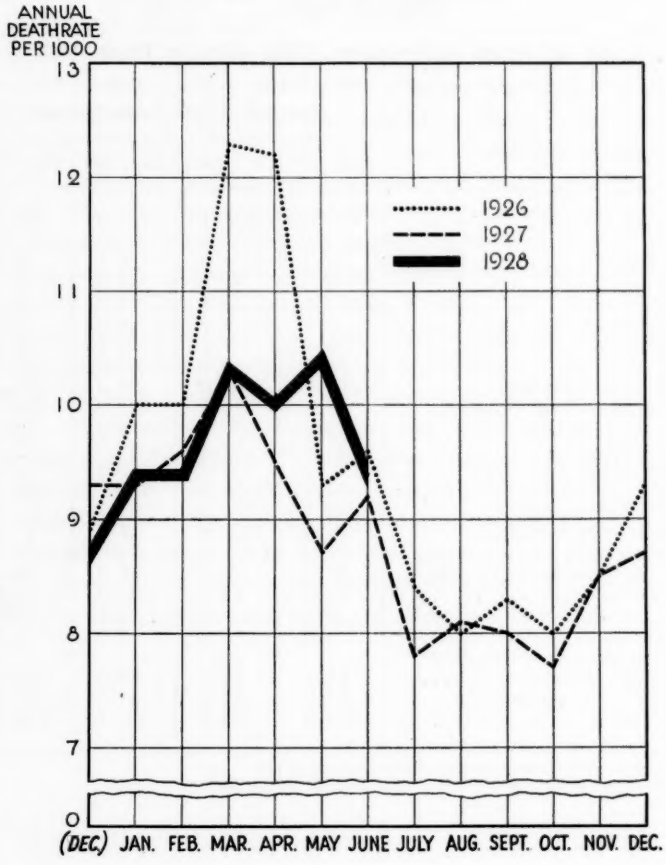
Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1926	10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927	9.3	9.6	10.3	9.5	8.7	9.2	7.8	8.1	8.0	7.7	8.5	8.7
1928	9.4	9.4	10.3	10.0	10.4	9.4						

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